DIRECTORATE OF GOVERNEMENT EXAMINATION, CHENNAI-6

HIGHER SECONDARY EXAMINATIONS SECOND YEAR MARCH 2023

BIO - CHEMISTRY ANSWER KEY

.PART - I

Note:

i. **Answer all the questions**

ii. **Choose the most appropriate from the given four alternatives and write the option code and the corresponding answer.**

Q. No	Code	Answers	15X 1=15
1	(b)	CO_2	1 MARK
2	(a)	Parietal cells	1 MARK
3	(c)	Pancreas	1 MARK
4	(d)	Pyruvate	1 MARK
5	(c)	Exchange of amino groups between a keto acid and an amino acid.	1 MARK
6	(d)	Cytosol	1 MARK
7	(a)	Lysolecithin	1 MARK
8	(d)	Transcription	1 MARK
9	(a)	Factor XI	1 MARK
10	(a)	Galactose -1 – phosphate uridyl transferase	1 MARK
11	(b)	DNP	1 MARK
12	(b)	Turnover number	1 MARK
13	(a)	Koshland	1 MARK
14	(d)	IgA	1 MARK
15	(b)	Karl Landsteiner and Weiner	1 MARK

Q.No.	**PART - II** **Answerany <u>six</u>questions.Question no.24 is compulsory.**	**6X2=12**
16	Buffer is defined as a solution which resists the change in pH that will occur on addition of small quantities of acid or base to the solution.	2 Marks
17	i) Parotid glands – inferior and anterior to the ears ii) Submandibular glands – floor of the mouth iii) Sublingual glands – beneath the tongue (Any Two)	2 Marks
18	NADH – Oxidised by the respiratory chain to generate ATP. NADPH – Hydrogen and electron donor in fatty acid and cholesterol biosynthesis.	2 Marks
19	Deamination is the process of removal of amino group from amino acid as ammonia.	2 Marks
20	As the mitochondrial membrane is impermeable for long chain fatty acids, they are transported by a special carrier molecule called carnitine.	2 Marks
21	Polymerase chain reaction (PCR) is a method used to make billions of copies of a small region of DNA (OR) Steps : i) Denaturation ii) Annealing iii) Extension	2 Marks
22	It is a three dimensional area or region on the surface of the enzyme molecule where the substrate binds	2 Marks
23	It is a branch of medical science that deals with the geographical distribution and timing of infectious disease occurrences	2 Marks

24	It is a process by which a substance decrease the catalytic activity of the enzyme -- 1mark Types : i) Reversible inhibition ii) Irreversible inhibition iii) Allosteric inhibition --1 mark		2 Marks
Q.No.	**PART - III** **Answer any six questions. Question no. 33 is Compulsory.**		**6X3=18**
25	Definition. Maltose, sucrose, Lactose (OR) Maltase, sucrase, Lactase	1Mark 2 Marks	3 Marks
26	Biosynthetic Pathway (OR) Explanation		3 Marks
27	i) Temperature ii) Cholesterol iii) Saturated and unsaturated fatty acids	1 Mark 1 Mark 1 Mark	3 Marks
28	Cori cycle pathway (OR) Explanation		3 Marks
29	i) Structural component of the cell membrane ii) Precursor for the synthesis of steroid hormones, vitamin D and bile acids iii) Essential component in the structure of lipoprotein	1 Mark 1 Mark 1 Mark	3 Marks

30	Any three differences between prokaryotic and eukaryotic transcription. (3×1mark)		3 Marks
31	i) Hypoglycemia ii) Enlarged liver iii) Distended abdomen iv) Doll like face v) High level of blood uric acid vi) Hyperlipidemia vii) Intolerance of fasting viii) Frequent nose bleeds ix) Large accumulation of glycogen x) Ketosis. (Any six)		6x1/2=3 Marks
32	Diagram with parts (OR) Explanation		3 Marks
33	Widal test : Used for the diagnosis of typhoid fever Test Procedure	1 Mark 2 Marks	3 marks
Q.No.	**PART - IV** **Answer all the questions.**		**5X5=25**
34 a	Protein composition of membrane 1. Integral protein i) Transmembrane proteins - Single pass transmembrane protein - Multi pass transmembrane protein ii) Lipid anchored proteins Peripheral protein. 2. Peripheral protein	1 Mark 1 Mark 1 Mark 1 Mark 1 Mark	5 Marks

34. b	Humoral immunity Cell mediated immunity	2 1/2Marks 2 1/2Marks	5 Marks
35 a	Competitive Inhibition (Any five points)	5×1 Mark	5 Marks
35 b	Types of Albinism i) OCA1 -OCA1a -OCA1b ii) OCA2 iii)OCA3 iv)OCA 4	1Mark 1Mark 1Mark 1Mark 1 Mark	5 marks
36 a	Oxidation of fatty acids i) Activation of fatty acids in the cytosol ii) Transport of fatty acids into mitochondria iii) β-Oxidation in the mitochondrial matrix	1 mark 1 Mark 3 Marks	5 mark
36 b	Applications of NGS technologies i) Transcriptomic profiling ii) Polymorphism and variation discovery iii) Protein – DNA Interaction analysis iv) Metagenomics	1 Mark 1 Mark 1 ½ Mark 1 ½ Mark	5 Marks

37 a	**TCA Cycle** TCA Cycle pathway (structure not needed) (OR) Pathway explanation	5 Marks	5 Marks
37 b	Urea cycle Urea cycle pathway (structure not needed) (OR) Pathway explanation Significance	4 Marks 1 Mark	5 Marks
38 a	High energy compounds Definition Storge form of high energy compounds ATP as a high energy compound	1 Mark 1 Mark 3 Marks	5 Marks
38 b	Gastrointestinal hormones Gastrin cholecystokinin Secretin Gastric inhibitory peptide Motilin Hepatocrinin Enterocrinin Chymodenin (Any Five)	5x1=5	5 Marks